Nuclear Cities Initiative

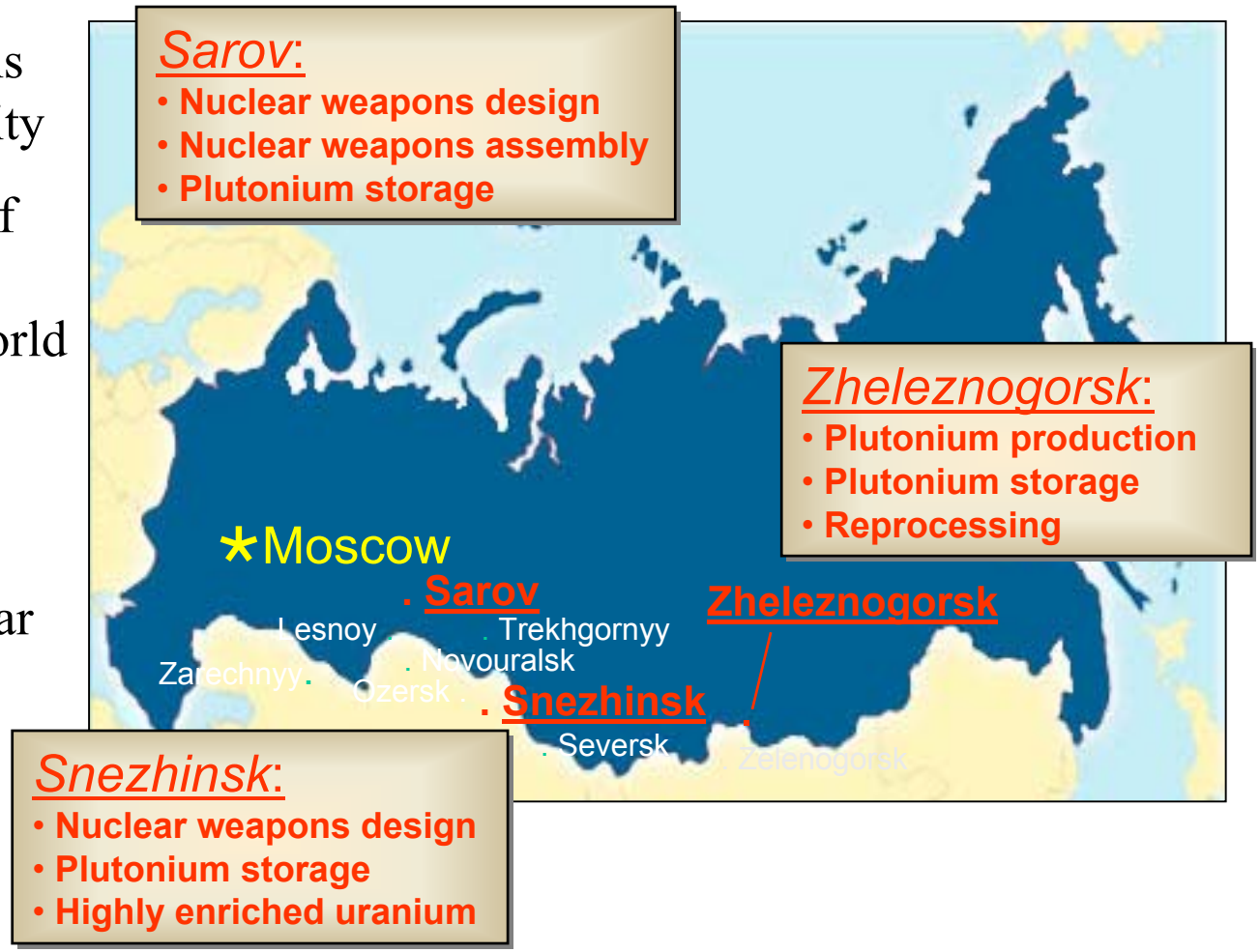
Program Overview

May 2003

Russian Federation Nuclear Weapons Complex

The Nuclear Cities Initiative works to enhance U.S. and global security by supporting weapons complex reduction in the Russian nuclear cities

- Center of weapons production capacity
- Largest amount of weapons-usable material in the world
- 150,000 workers
- 700,000 residents
- Core of the nuclear complex



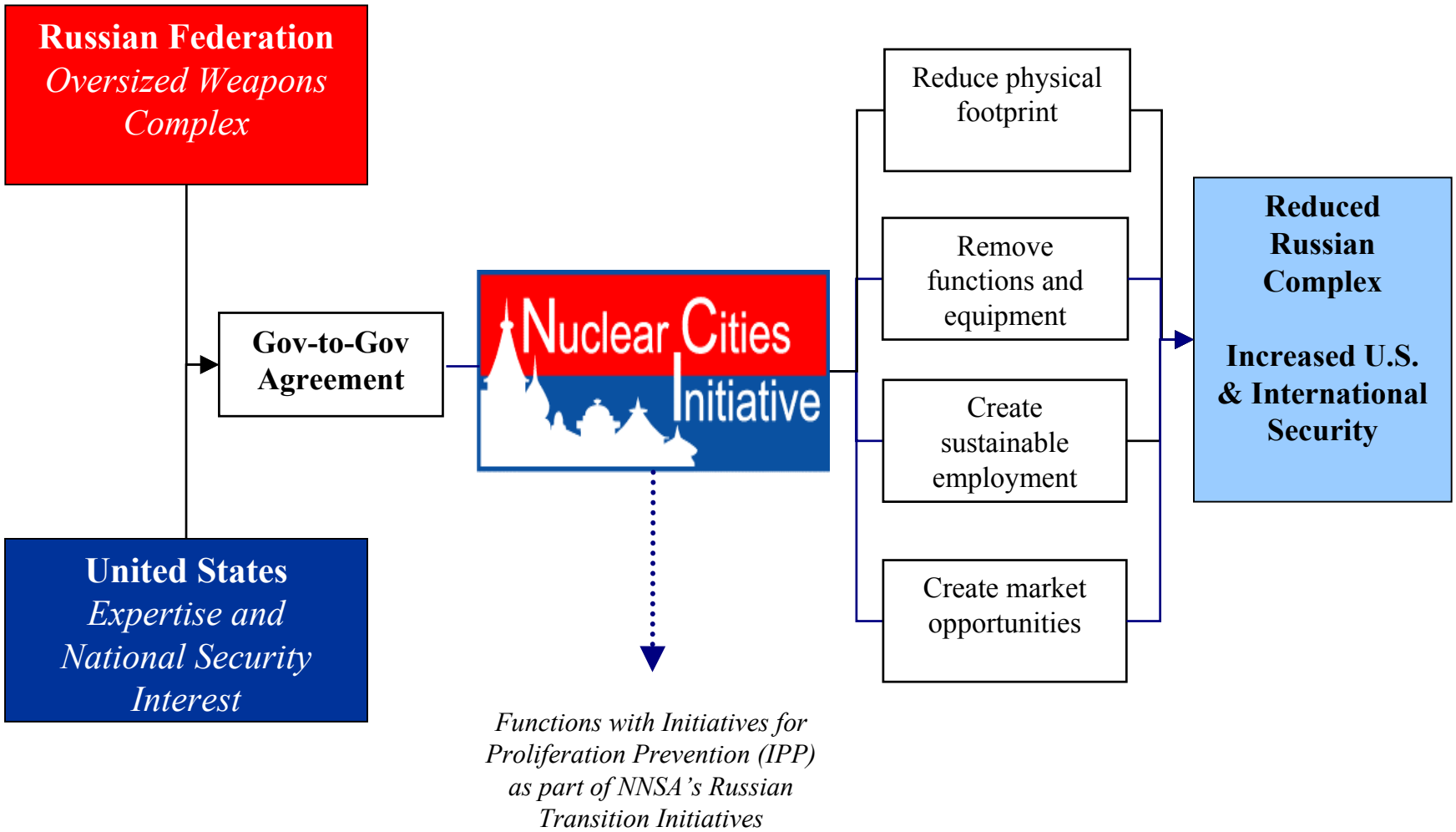
NCI's Relevance in Today's World

"The most urgent unmet national security threat to the United States today is the danger that weapons of mass destruction or weapons-usable material in Russia could be stolen and sold to terrorists or hostile nation states, and used against American troops abroad, or citizens at home…"

Special Bi-Partisan Task Force,

January 2001

About NCI


Russian Federation
Oversized Weapons Complex
United States
Expertise and National Security Interest
Gov-to-Gov Agreement
Nuclear Cities Initiative
Reduce physical footprint
Remove functions and equipment
Create sustainable employment
Create market opportunities
Reduced Russian Complex
Increased U.S. & International Security
Functions with Initiatives for Proliferation Prevention (IPP) as part of NNSA's Russian Transition Initiatives

What NCI Does

Infrastructure Development

- Physical Improvements
  - Moving fences, renovating buildings
  - Upgrading telecommunications
  - Installing utilities
- Business Development
  - IDCs
  - Management Training
  - Marketing Support

Building renovation for Spektr Conversion

Business training at the Zheleznogorsk IDC

Commercial

- Developing self-sustaining business
- Focusing on core competencies and resources in each city

Producing Results

Enterprises on the Road to Market

- ITEC
- SarovLabs
- Strela Open Computing Center
- Open Science Centers
- SPEKTR-CONVERSION
- Delphi Shock Absorbers
- 12 small start-up companies

Commercial Partners

- Adapco
- Animatek
- Delphi
- Gazprom
- General Electric
- Livermore Software Technology Corp.
- Motorola
- Novosoft
- Oracle
- VDI

Business Infrastructure

- Business Training – 1800 trained in 2002
- Access to non-USG capital - $52M in leveraged funds
- Nonproliferation Centers
- International Development Centers *(marketing, business expertise)*
- Civilian Engineering Design Centers *(designing production lines)*
- Innovation Technology Center *(rapid prototype design)*

Physical Infrastructure

- Telecommunications/Internet Support
- Technoparks
- Building upgrades

Project Areas

- Medical Technology
- Information Technology
- Energy & Environment
- Security & Counter Terrorism
- Metallurgical Processes
- Industrial Engineering

Sarov

- Population: 83,000
- Location: about 255 miles southeast of Moscow in the Nizhny Novgorod oblast and about 90 miles south of the city of Nizhny Novgorod itself
- Main Facilities: All-Russian Scientific Research Institute of Experimental Physics (VNIIEF) with a workforce of 18,000 and the former Avangard Electromechanical Plant with a workforce of approximately 3,500
- Functions: weapons design and weapons assembly/disassembly
- The birthplace of the Russian atomic bomb; became a closed city in 1946
- A provincial center famed as the site of Sarova Monastery, closed by the Soviets in 1923; a high bell tower, originally part of the monastery, still visible from much of the city

NCI Goals:

1. Eliminate Nuclear Weapons production capacity at Avangard by 2004 - Accomplished
2. Absorb excess capacity - people and facilities - of VNIEFF and Avangard into civilian enterprises

Facility Downsizing in Sarov

- Avangard Weapons Assembly Plant closed and military work ceased Feb 2003
- 550,000 sq.ft. of Technopark created in former Avangard buildings
- High speed computers removed from VNIIEF design institute
- 600 workers involved in civilian jobs

Infrastructure in Sarov

- Improved data, cell telephone connectivity
- Built rapid prototyping, production engineering centers
- Improved marketing capabilities, business management, quality assurance
- Renovated commercial space/buildings for commercial projects
- Access to $1.4M in micro and small loans for over 90 entrepreneurs

Sarov Projects

Industries	Projects
Security and Counter Terrorism	• Physical Security Systems for MPC&A (SATIS) • Irradiator Technology Commercialization
Energy and Environmental	• Volgogaz (Instrumentation for Oil and Gas Industry) • Elegas (sulfur hexafluoride switches for the electric distribution industry) • Mobile Elegas (servicing equipment for Elegas switches)
Information Technology	• Open Computing Center • SarovLabs
Physical Infrastructure	• Avangard Technoparks • Telecommunications upgrade • Mobile phone network
Business Infrastructure	• Innovative Technology Center • Civilian Engineering Design Center • Marketing support • ISO 9000 Certification/Training
Industrial and Metallurgical Processes	• Production of Metro Equipment • Rotary Compressors • Sheet Metal Fabrication • Production of Shock Absorbers

Commercial Successes in Sarov

Assisted in establishing or expanding 10 businesses:

- SarovLabs: combined Open Computing and Science Centers under new management
- Satis: distributes MPC&A equipment, 2 pending US partnerships
- Delphas: US Joint Venture partner, manufacture auto parts for Russian industry
- Mobile Elegas: 4 related ventures service the Russian power distribution industry
- Road Repair Vehicles: Over $1M in in contracts outstanding for new award-winning truck design

Avangard Closure
Reducing Production Capacity

- All military work ceased as of Feb 2003
- Avangard will be dissolved as legal entity
- Residual functions and workers transferred to VNNIEF
- Conversion projects in Avangard Technopark to continue without Disruption
- One of four Russian weapons assembly facilities. Closed six months ahead of schedule.
- Fulfills NCI Closure Agreement signed in Sept 2001

Snezhinsk

NCI Goals:

1. Absorb planned excess capacity of VNIITF, which will remain the central weapons design institute
2. Ensure sustainability of established civilian spin-off enterprises employing former weapons workers

- Population: 48,000
- Location: about 850 miles southeast of Moscow and about 50 miles south of Yekaterinburg, near the Ural Mountains and in the Chelyabinsk oblast
- Main Facility: All-Russian Scientific Research Institute of Technical Physics (VNIITF) with a current workforce of 9,500
- Functions: nuclear weapons design, HEU and Pu storage
- Russia's second weapons research and design institute; city developed around the institute, which opened in 1955
- Located along the shores of Lake Sinara; U.S. pilot Francis Gary Powers shot down by a missile fired from a nearby location

Facility Downsizing in Snezhinsk

- High speed SGI computers removed from VNIITF
- 4000 downsized weapons workers from VNIITF involved in civilian jobs
- Expansion of civilian industries created under RTI including
  - ITEC expands to windows/doors manufacture capitalizing on same physical security technology used in man-trap booths
  - SEST Pipe Coating adds oil and gas pipeline manufacture to production of insulated pipes used in heating systems.
  - SPEKTR-Conversion expands to medical devices beyond prostheses

Infrastructure in Snezhinsk

- Certification, management and strategic planning assistance, marketing outreach
- Upgrading of physical plant, telecom support, machine tools, packaging equipment and IT hardware and software
- Building of second story onto SPEKTR-conversion facilities
- Building of expanded facility (additional 80 places) for OCC-Strela
- Renewed and two-fold increase in interest from Russian investors
- Access to $760K in micro and small loans for over 20 entrepreneurs
- Collaboration with Russian side on development of Area 21 (Sokol) as less-intensive access site for businesses and demonstration facilities.

Snezhinsk Projects

Industries	Projects
Medical Technology	• Pharmaceutical Repackaging , PET Scan, SPEKTR-Conversion medical device manufacture
Security and Counter Terrorism	• ITEC
Energy and Environmental	• Spektr Conversion, SP-Oil Well Perforator, Pipe Coating
Information Technology	• Strela OCC, ITEC, SPEKTR-Conversion
Physical Infrastructure	• Klon and Cable-ISP (telcom), Spektr Conversion Building, • Newest OCC-Strela Building
Business Infrastructure	• International Development Center, Spektr Conversion business development, ISO-9000 training, Experienced Russian consultants matched by expertise for one-on-one tutorials
Industrial	• SP-Machine Tools/Shop, High –Temperature Ovens, Pipe Coating Production, Polyethylene Terphlalate Blanks production (for plastic bottles)

Commercial Successes in Snezhinsk

- ITEC: Independent business, distributes and supports physical security clientele. Works with MPC&A.
- Spektr-Conversion: Flagship RTI project. Example of how RTI works best: NCI physical and business infrastructure support, IPP continues and expands projects.
- Pipe-coating: District heating pipes and expansion in off-season to oil pipelines. Co-funded by NCI and Snezhinsk : NCI $2 M and Russian side $2.2M.
- OCC-Strela: Two profit centers: LS-Dyna crash code dynamic Licensing and service support; and Art-Strela animation plug ins. In 03: $20K in in-kind from LSTC to Dyna in leveraged funding. Will deliver Oracle based shipping logistics to Western client.

ITEC: A Success Story in Snezhinsk

- Registered company in Snezhinsk
- Identification devices for security at industrial facilities
- Headed by former VNIITF leadership
- Supplies broad range of security services, including MPC&A equipment
  - Over $100K in sales
- Developing non-nuclear market
  - Promising contacts throughout Russia
  - Completed first export

Zheleznogorsk

- Population: 100,000
- Location: about 2000 miles east of Moscow and about 35 miles downstream from the city of Krasnoyarsk in Siberia
- Main Facility: Mining and Chemical Combine (MCC) with a workforce of 9,000
- Functions: Five Pu production reactors, Pu reprocessing, and waste management
- Situated on the east bank of the Yenisei River, and constructed in the 1950s to house the plutonium facility; the town was built to resemble St. Petersburg
- The third and last Russian military plutonium production site; took years to carve MCC into a mountain so deep that it was thought that production could continue even after a nuclear strike

NCI Goals:

1. Plan to absorb excess capacity from reactor shutdown
2. Facilitate a city, MCC, and MinAtom partnership in conversion

Facility Downsizing in Zheleznogorsk

- Removed old plutonium processing equipment from the MCC for use in commercial rare earth metals processing
- Creating open access area for commercial production work out of defense security area of MCC
- Removed CO2 extraction equipment from MCC for use in making extracts for commercial personal care products

Infrastructure in Zheleznogorsk

- Business incubator site, renovate and equip software center, telecommunications upgrades
- Operate business support center, Internet service provider
- Develop workforce transition plans, commercial marketing strategies.
- Access to $2M in micro loans for over 170 entrepreneurs

Zheleznogorsk Projects

Industries	Projects
Energy and Environmental	• Energy Efficiency Products (insulated pipes, windows) • MCC Technologies, Inc. (waste remediation)
Information Technology and Scientific Services	• Novosoft-Zheleznogorsk Software Development Center
Physical Infrastructure	• Atomlink Telecommunications • Technopark (business incubator) • MCC Open Access Area
Business Infrastructure	• International Development Center • Strategic Plans for MCC Worker Transition and City Development • Revolving Fund
Medical Technologies	• Medical Bandages Production
Industrial and Metallurgical Processes	• Aluminum Equipment Production • Wood Plant Production • CO-2 Extraction Products (health and agricultural) • Rare Earth Metals (Niobium) Production

Commercial Successes in Zheleznogorsk

- Novosoft-Zheleznogorsk Software Development Partnership: serves Russian and off-shore markets
- Wood Processing Plant: expanded international markets and pending US partnership
- Medical Bandages: 5 products for wounds, burns and surgical applications, national market
- Aluminum Equipment Production: serves large regional aluminum industry in Siberia
- Atomlink ISP: local business expands commercial communications and fosters business growth
- CO2 Extraction: Isotope extraction equipment from MCC used to make commercial extracts used in personal care consumer products

Novosoft Zheleznogorsk Software Development Center

- New software development opened center in Zheleznogorsk on Nov 5, 2002
- Created as a subsidiary of Novosoft-Novosibirsk, and experienced company with 500 successful software contracts

Employees at work on software contracts

- Partners with IDC, providing revenue stream for sustainability of both organizations
- Novosoft will create 100 high technology jobs for displaced MCC scientists

Cross City Activities: International Development Centers

NCI established International Development Centers (IDC) in Zheleznogorsk and Snezhinsk to support new business creation and economic diversification.

Services:

- business planning
- financing options
- business registration
- training, project evaluations
- management consultations
- information resources

Zheleznogorsk IDC

Snezhinsk IDC

Results:

- Over 300 trained per month
- Facilitated creation of over 350 new jobs
- Project evaluation and support services to the Zheleznogorsk City Administration resulted in the award of $17 million in Russian federal defense conversion funds

Innovative Directions

- Identifying and developing contracts with Russian consulting resources to provide business plan and marketing expertise for NCI projects
- Bringing in business experts (former Motorola exec) to fill expertise gap in business know-how and provide project mentoring
- Working with the Nuclear Threat Initiative (NTI) on SarovLabs – providing two positions for experienced marketing, operations managers to create "business culture"
- Assisting Zheleznogorsk to create a Revolving Fund, using transparent and auditable bank management procedures to support small and medium enterprise development.
- Creating a Technopark Business Incubator in Zheleznogorsk to support and nurture emerging businesses, leveraging the management enterprise and training available through the International Development Centers.
- Virtual Business network linking five closed nuclear cities and other high-tech sites in Urals created through Snezhinsk IDC
- Several RTI projects with energy/environmental spin-offs cooperating with British Closed City Partnership Program (e.g., British energy meters complementing insulated pipe production)

Future Direction: Zarechnyy

- Population: 64,000
- Location: about 340 miles east/southeast of Moscow
- Main Facility: Production Association Start with a workforce of 10,000
- Functions: nuclear weapons assembly/disassembly, Pu and HEU storage

- Second assembly/disassembly plant (after Avangard) where MinAtom has indicated it is planning to eliminate nuclear weapons activity
- According to reports, Zarechnyy has a head start on conversion; already producing actuators for ITEC security equipment
- Involved in the Oil and Gas Industry

Future Direction
Seversk

- Population: 119,000
- Location: about 1100 miles east/southeast of Moscow in Siberia
- Main Facility: Siberian Chemical Combine (SCC) with a workforce of 15,000
- Functions: uranium enrichment and reprocessing, Pu production reactors, waste management

- Largest nuclear center in the world, Siberian Chemical Combine
- With the planned reactor shutdown, 10,000 people will require alternative employment, the largest requirement for any city